

The invention claimed is

[0001] 1. (Currently Amended) A nanocomposite produced by the process comprising:

dissolving a metal ionsalt in a solvent system to form a metal ion salt solution, wherein said solvent system is common to said metal ion salt and a polymer;

adding an epoxide to said metal ion salt solution to form an epoxide-containing metal ion salt solution;

dissolving said polymer in said solvent system to form a polymer solution;

adding a portion of the polymer solution to the polymer-containing metal ion salt solution to form a polymer-containing, epoxide-containing metal ion salt solution; and

stirring said a polymer-containing, epoxide-containing metal ion salt solution until said solution gels.

[0002] 2. (Currently Amended) The nanocomposite produced by the process recited in Claim 10 1, further comprising:

adding a fuel metal powder to said polymer-containing, epoxide-containing metal ion salt solution while stirring, wherein said addition of the fuel metal powder occurs before said polymer-containing, epoxide-containing metal ion salt solution gels.

[0003] 3. (Currently Amended) The nanocomposite recited in Claim 10 1, wherein said metal oxide is Fe<sub>2</sub>O<sub>3</sub>.

{0004} 4. (Currently Amended) The nanocomposite produced by the process recited in Claim 10 1, wherein said polymer is a fluoroelastomer.

{0005} 5. (Currently Amended) The nanocomposite produced by the process recited in Claim 11 2, wherein said fluoroelastomer is Viton®A, A-100.

{0006} 6. (Currently Amended) The nanocomposite produced by the process recited in Claim 10 1, wherein Viton®A, A-100 is soluble in said solvent system.

{0007} 7. (Currently Amended) The nanocomposite produced by the process recited in Claim 10 1, wherein said solvent system is a mixture of ethanol and acetone.

{0008} 8. (Currently Amended) The nanocomposite produced by the process recited in Claim 11 2, wherein said fuel metal powder is Al, Mg, B, Ti, Zr or mixtures thereof.

{0009} 9. (Currently Amended) The nanocomposite produced by the process recited in Claim 11 2, wherein said fuel metal powder is ultra fine grain aluminum.

{00010} 10. (Currently Amended) A nanocomposite comprising:  
an inorganic sol-gel polymer phase comprising at least one metal-oxide and at least one epoxide; and  
an interpenetrating organic polymer phase entwined in said inorganic sol-gel phase.

[00011] 11. (Currently Amended) The nanocomposite recited in Claim 19 10, wherein said inorganic sol-gel polymer phase further comprises:

A fuel metal powder.

[00012] 12. (Currently Amended) The nanocomposite recited in Claim 19 10, wherein said metal oxide is Fe<sub>2</sub>O<sub>3</sub>.

[00013] 13. (Currently Amended) The nanocomposite recited in Claim 19 10, wherein said polymer is a fluoroelastomer.

[00014] 14. (Currently Amended) The nanocomposite recited in Claim 22 13, wherein said fluoroelastomer is Viton®A, A-100 .

[00015] 15. (Currently Amended) The nanocomposite recited in Claim 20 11, wherein said fuel metal powder is Al, Mg, B, Ti, Zr or mixtures thereof.

[00016] 16. (Currently Amended) The nanocomposite recited in Claim 20 11, wherein said fuel metal powder is ultra fine grain aluminum.